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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,706	04/28/2006	Tadahiro Ohmi	039262-0150	4847

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FOLEY AND LARDNER LLP  
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3000 K STREET NW  
WASHINGTON, DC 20007

EXAMINER
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CHEN, KEATH T

ART UNIT	PAPER NUMBER
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1792

MAIL DATE	DELIVERY MODE
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12/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

### Application No.

10/568,706

### Applicant(s)

OHMI ET AL.

### Examiner

Keath T. Chen

### Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,9-14,19,21,24,28-30 and 32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,9-14,19,21,24,28-30 and 32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

The claim amendment filed on 10/12/2007, addressing claims 1-32 rejection from the first office action (06/12/2007), amending claims 1-4, 14, 19, 21, 28-30 and 32, and canceling claims 5-8, 15-18, 20, 22-23, 25-27, and 31, is acknowledged and will be addressed below.

### ***Claim Objections***

1. Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The term "reduced-pressure processing apparatus" does not further limit "vacuum processing apparatus".

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-4, 9-14, 19, 21, 24, 28-30, and 32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the

time the application was filed, had possession of the claimed invention. For example, where does specification disclose all gaskets except one door gasket are metal or ceramic?

3. Claims 1-4, 9-14, 19, 21, 24, 28-30, and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "a small emission of organic matter" in claim 1 is a relative term which renders the claim indefinite. The issue is "how small is small"? The term "small" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 1 will be examined as "a small emission of organic matter" as being compared to any other organic seals.

The term "which are different from each other in frequencies of attach/detach ..." in claim 30 is a relative term which renders the claim indefinite. The term "high/low frequency" is not defined by the claim, the specification (page 8, lines 19-23, multiple range of definition) does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

These claims will be examined as without structural limitations from "high (or low) attach/detach frequency".

Claim 30, lines 7-8, the term "an emission prevention process" is not clear. It is not defined in the claim nor in the specification.

Claims 30 and 32 will be examined with the limitation of claim 3 as "emission prevention process".

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (US 20020132047, hereafter '047).

'047 teaches all limitations of:

Claim 28: An organic EL element ([0004], lines 1-3) characterized by comprising an organic layer ([0019], line 8) formed by the use of the vapor deposition apparatus ([0019], last two lines) according to claim 1 (product-by-process claim, see MPEP 2113).

Claim 29: An organic EL display device ([0004], last 3 lines) characterized by comprising an organic layer formed by the use of the vapor deposition apparatus according to claim 1.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-2, 4, 11-14, and 24 are rejected under 35 U.S.C. 102(b) as being unpatentable over Phillips et al. (US 4889319, hereafter '319), further in view of Yoshiro et al. (English translation of JP2002-310302, hereafter '302). (US 20070037922 and 3114778 are cited for definition of perfluoroelastomer.)

'319 teaches some limitations of claim 1:

A vacuum processing apparatus (Fig. 4) comprising a pressure-reduction container (#36, deposition chamber, col. 7, lines 3-4, at ultra high vacuum, col. 6, lines 40-45), exhaust means (pump 47, col. 7, lines 8-9) joined to said pressure-reduction container, and a processing object introducing door (#54, bakeable gate valve, col. 7, lines 23-25) connected to said pressure-reduction container (#36) through a door gasket (#92, O-ring of gate valve, Figs. 6 or 7), and a plurality of gaskets for ensuring airtightness of said pressure-reduction container (some shown in Fig. 5, others required in pumps, for example, not shown in Fig. 4), the gaskets except the door gasket

includes a gasket formed by either one of a metal and a ceramic (see discussion below).

'319 further teaches that conventional vacuum systems have all-metal seals (col. 1, lines 58-62); seals of various forms is required in doors at sample entry ports (col. 2, lines 9-11) because the frequency of open/close (col. 2, lines 30-31) and cost of metal gaskets (col. 2, lines 23-31). '319's invention includes an elastomeric gasket (col. 2, lines 49-50) for the door gaskets.

'319 does not teach the other limitation of claim 1:

Said door gasket is made of a material with a small emission of organic matter.

'302 is an analogous art in the field of sealing material for a vacuum system, particularly in providing superior sealing performance (abstract). '302 recognizes the need to lower organic emission of volatile component in the next generation of fabrication factory ([0003]) and provides organic perfluoroelastomer ([0007]) with small emission of organic matter ([0044]).

At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to have combined '302 with '319. Specifically, to have adopted the perfluoroelastomer of '302 as the elastomeric material for the gaskets in the apparatus in Fig. 4 of '319, for the purpose of reducing emission of organic matter, as taught by '302 ([0004]).

'319 further teaches the limitations of:

Claim 11: A degree of vacuum at the time of treatment is 100 Torr or less (col. 3, lines 23-24).

Claim 12: Said vacuum processing apparatus is a reduced-pressure processing apparatus (title).

Claim 13: Said vacuum processing apparatus is a vapor deposition apparatus (#36 deposition chamber).

Claim 14: A deposition source container (Fig. 4, #38 and #43, Knudsen cells, col. 7, lines 4-5).

Claim 24: The apparatus is capable of depositing an organic EL element material (intended use).

For claim 24, applicant's claim requirements "material put into said deposition source" is considered intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

'302 further teaches the limitations of:



Claim 2: The constituent material of said door gasket contains organic matter.

Claim 4: A main component of said constituent material containing organic matter is a perfluoroelastomer. ('302 teaches the use of organic perfluoroelastomer as the main component of gasket, made from polymerization of "tetrafluoroethylene" in [0010], line 2, and "CF<sub>2</sub>=CF-O (CF<sub>2</sub>)-1 -6-O-CF=CF<sub>2</sub>", line 8, perfluorinated divinyl ethers (based on US 20070037922 and 3114778 for definition of perfluoroelastomer).

6. Claims 3, 30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over '319 and '302, further in view of Hisaharu et al. (English translation of JP06-107803, hereafter '803).

'319 and '302, together, teach all limitations of claim 2, as discussed above. '302 further teaches the treatment of sealant in acetone.

'302 does not teach the limitation of claim 3:

The constituent material of said door gasket has been subjected to an emission prevention process of contacting it with water at 80° C or more.

'803 is an analogous art in the field of sealing material, particularly in solving the gas emission of fluororubber (abstract, lines 1-2). '803 teaches treatment of crosslinked rubber, including perfluoroelastomer ([0017] 2<sup>nd</sup> last two lines) in contact with a solvent, including water ([0037], line 1), at 95-100° C to lower gas emission (abstract, lines 8-10).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '803 with '302 and '319. Specifically, to have treated the gasket made of perfluoroelastomer of '302 in water at 95-100° C according to '803 for the purpose of lower gas emission, with a reasonable expectation of success.

'319 further teaches the limitations of claim 30:

A vacuum processing apparatus comprising a plurality of airtight sealing members (some shown in Fig. 5, others required in pumps, for example, not shown in Fig. 4), which are different from each other in frequencies of attach/detach (capable of being attached/detached at different rates) and which are classified into a first sealing member of a high frequency of the attach/detach (doors, col. 2, lines 9-31) and a second sealing member of a low frequency of the attach/detach (pumps, col. 7, lines 8-9), wherein the first sealing member is formed by an organic matter (elastomer, col. 2, line 49) while the second sealing member is formed by a metal (pumps, col. 1, line 58-60).

From the above combination of '803, '319 and '302:

'803 teach the other limitation of claim 30:

(An organic matter) subjected to an emission prevention process.

'302 teach the other limitation of claim 32:

The organic matter of the first sealing member contains a perfluoroelastomer as a main component (see claim 4 above).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over '319 and '302, further in view of Kenichi (English translation of JP09-189290, hereafter '290).

'319 and '302, together, teach all limitations of claim 1, as discussed above.

'319 and '302, together, do not teach the limitation of claim 9:

Said exhaust means comprises a pump and causes a small amount of an inert gas to flow upstream of said pump or at a pump purge portion.

'290 is an analogous art in the field of vacuum processing device (abstract), particularly solving the problem of by-product contamination ([0004], lines 1-5)). '290 teach an inert gas supply (Fig. 1, #24) upstream from the vacuum pump (#22) for the purpose of automatically manageable vacuum processor, without depending on an operator ([0005], last 3 lines).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '290 with '302 and '319. Specifically, to have included an inert gas supply port upstream from the vacuum pump of the vacuum processing apparatus of '302 for the purpose of automatically manage vacuum processor.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over '302 and '319, further in view of Ohmi (US 5863842, hereafter '842).

'319 and '302, together, teach all limitations of claim 1, as discussed above.

'319 and '302, together, do not teach the limitation of claim 10:

Said exhaust means comprises a primary pump, a secondary pump connected to an exhaust side of said primary pump, and a gas introducing portion for introducing an inert gas between said primary pump and said secondary pump.

'842 is an analogous art in the field of vacuum exhausting apparatus (col. 1, lines 8-10), particularly in solving the problem of impurities (col. 1, lines 20-29). '842 teaches the use of a secondary pump (Fig. 1, roughing vacuum pump) connected to an exhaust side of a primary pump (Fig. 1, #103, turbo-molecular pump), and a gas introducing portion (#114) for introducing an inert gas between said primary pump and said secondary pump for the purpose of preventing reverse diffusion of the impurity (col. 1, lines 37-40).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '842 with '302 and '319. Specifically, to have included a turbo-molecular pump and a roughing vacuum pump as the vacuum system for the vacuum processing apparatus of '302, and to insert an inert gas supply in between, for the purpose of preventing reverse diffusion of the impurity. Therefore, to have obtained the invention of claim 10.

The examiner notes that the use of dual pump is common practice to obtain a high vacuum system.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over '302 and '319, further in view of Yamazaki et al. (US 20020132047, hereafter '047).

'302 and '319, together, teach all limitations of claims 1 and 14, as discussed above. '302 and '319 are silent on deposition source.

'302 and '319, together, do not teach the limitations:

Claim 19: An inner surface of said deposition source container contains at least one of an oxide or a nitride of an element selected from Si, Cr, Al, La, Y, Ta, Ti, and B, or C.

'047 is an analogous art in the field of vapor deposition ([0086]), particularly in solving the problem of providing high purity material for deposition ('047 abstract) similar to avoiding volatile organic emission problem of '302. '047 teaches a film forming chamber (Fig. 5) having deposition source container (#509a and #509b), the crucible is made of quartz ([0070] lines 3-4, which clearly applies to #509a,b of Fig. 5), with organic EL element material ([0090], lines 2-4, the subject of '047 is about OLED); an organic EL element ([0002], lines 1-4) characterized by comprising an organic layer (abstract, last line); and an organic EL display device ([0004, lines 5-7) characterized by comprising an organic layer (abstract, last line).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '047 with '302 and '319. Specifically, to have applied the organic EL element material, making organic EL element and display device, as taught in '047, in the apparatus of '302. Furthermore, to have adopted the quartz (SiO<sub>2</sub>) deposition source container as taught in '047 (instead of Knudson cell as

in '319). The motivation would have been providing high purity material for organic EL formation.

10. Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over '302 and '319, further in view of Jabbour (US 20030026601, hereafter '601).

'302 and '319, together, teach all limitations of claim 14.

'302 and '319, together, do not teach the limitation of claim 21:

Said deposition source container contains at least one of a nitride of Al, B, or Si, C or a metal material.

'601 is an analogous art in the field of for OLED ([0005]), particularly in providing purified molecules for vapor deposition (abstract). '601 teaches crucible can be made of silicon nitride, boron nitride ([0013]) for the purpose of providing deposition of thin films of organic molecules ([0023]).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have combined '601 with '302, and '319. Specifically, to have adopted the SiN or BN as crucible material (the deposition source container), as taught by '601, for the purpose of providing deposition of thin films of organic molecules ([0023]). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, U.S. 327, 65 USPQ 297 (1945).

***Response to Arguments***

11. The specification objection in the first office action is a typo. There was no specification objection.

12. Applicant's arguments filed on 10/18/2007 have been fully considered but they are not persuasive. However, prosecution is reopened in view of the new rejection of claim 21.

a. In regarding to claim objections, see pages 6 and 7, applicant argues that "the reduced-pressure processing apparatus or the vapor deposition apparatus will be collectively called a vacuum processing apparatus in this specification" further limits claim 12 from claim 1. The argument is unconvincing because all vacuum apparatuses are reduced pressure apparatus. The objection to claim 12 remains.

b. In regarding to 35 USC 112 rejection, applicant's cancellation of claims 5-8, 15-18, 20, 22-23, 25-27 and 31, and amendment of claim 4, 14, 19, 21, 24, 28, and 29 overcome the 112 rejection of these claims. However, the amendment of claims 30 and 32, changing "organic matter emission prevention process" to "emission prevention process" does not overcome the 112 rejection.

Furthermore, claim 30 adds other relative terms "high (low) frequency of the attach/detach". Claims 30 and 32 remain rejected under USC112 as discussed above.

c. In regarding to prior art rejections under 35 USC 102(b) rejection of claim 1, 2, 4-6, 8, and 11-12, applicant argues the amended claim requiring "door gasket is made of a material with a small emission of organic matter while the gaskets except the door gasket includes a gasket formed by either one of a metal and a ceramic" are not taught by Yoshiro ('302). The rest of the arguments claiming none of the remaining references cited in the first office action address this feature. As discussed in the rejection above, '319 specifically teach the use of organic gasket in high frequency open/close operation.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keath T. Chen whose telephone number is 571-270-1870. The examiner can normally be reached on M-F, 8:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KC *XC,*

  
MICHAEL B. CLEVELAND  
SUPERVISORY PATENT EXAMINER